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ABSTRACT

The effects of a teacher-training program on the reading scores of 49 students enrolled in special learning-center classes were investigated in a sample of 49 seventh- through twelfth-grade students. Four reading teachers who participated in inservice training classes were pre- and posttested to determine attitudes toward child-centered educational policies and practices and toward progressive educational practices. Students were pre- and posttested using the Comprehensive Tests of Basic Skills and the Slide-O-Gram Individualized Perceptual Program. Results indicated that teachers were biased toward progressive, child-centered approaches at both pre- and posttesting. Students showed an average gain of one year in reading skills. (Author/AA)

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THE EFFECTS OF INCREASING TEACHER COMPETENCIES AS RELATED TO IMPROVED SECONDARY STUDENT READING SCORES

A Paper Presented to

International Reading Association

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Office of Riverside County Superintendent of Schools

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THE EFFECTS OF INCREASING TEACHER COMPETENCIES AS RELATED TO IMPROVED SECONDARY STUDENT READING SCORES

by Mary L. Kruse, Ed.D.

Abstract

This study investigated the effects of a teacher training program as it related to increased reading scores of forty-nine students enrolled in special learning center classes from grades seven through twelve. Four reading teachers were pre- and post-tested with the Opinionnaire on Attitudes Toward Education and the Education Scale to determine attitudes toward: 1. child centered educational policies and practices and 2. progressive vs. traditional educational practices. Students were pre- and post-tested with the Comprehensive Tests of Basic Skills, C.T.B.S., and the Slide-O-Gram Individualized Perceptual Program to determine gain scores. The grand mean gain score was found to be 1.016. All teachers demonstrated a high score or favorable attitude toward child-centered practices in education. Each teacher's score on the Education Scale showed they were biased toward progressive as opposed to traditional educational practices. This indicates there was a preference for the progressive child-centered classroom instructional approach.

Introduction

Interest in improving secondary reading scores as prompted investigation of the complex instructional process for this age group. Research for the most part has centered in investigating effective reading approaches, appropriate reading materials, and cost analysis (16). Little research is available on the effects of increasing teacher competencies as related to improved secondary student reading scores. Consequently, this research investigated the importance of providing teacher instruction in the diagnostic and prescriptive practices and the effects of supplying those materials

necessary to implement and enrich this policy and practice.

Several helpful findings have identified certain teacher characteristics that contribute to teacher effectiveness (3,9). Because of the effects teachers have upon student learning, i.e. classroom atmosphere and professional competency (1,11), it is important to continue to investigate those factors having impact on improved student performance.

Purpose of the Study

Review of the literature suggests that many explanations are offered for low reading scores of the secondary student (2,6,18). When students have experienced years of failure, attitudes and self-image are important considerations for the remediation process. Some educators (6,11) have suggested that instructional materials are not written to cope with beginning reading at the secondary student interest level.

Other educators (3,12,16) have stated that low achieving students can show significant gains (.05) when teachers are better prepared to diagnose and prescribe for singular student differences. Professional expertise in the execution of these policies and practices cannot be minimized.

The central focus of this research was to explore the effects of teacher inservice in diagnostic and precriptive procedures as related to increased secondary student reading scores.

Method

Student Sample

The study required that subjects score one or more grades below grade level in both vocabulary and comprehension as measured by the C.T.B.S. Forty-nine students were programmed into four special learning center classes through procedures determined by each school district. Each of these stu-

dents were pre- and post-tested for:

1. Reading comprehension and vocabulary as measured by the C.T.B.S.
2. Letter-sound proficiency as measured by the Slide-O-Gram Individualized Perceptual Program.

The students were also tested for learning potential by the Slosson Intelligence Test. This procedure yielded a total of forty-nine seventh through twelfth grade students enrolled in special learning center classes that were used as subjects. The following indicates the student grade distribution:

Grade 7	15 Students
Grade 8	10 Students
Grade 9	3 Students
Grade 10	12 Students
Grade 11	7 Students
Grade 12	2 Students
	49 Total Students

The student-teacher ratio of the special learning center classes in which the subjects were enrolled was not less than 1 to 8 and not greater than 1 to 15.

Socio-economic similarities are included to demonstrate similarities of students within the study. Ethnic minorities were almost equal in number to that of the caucasians. About half of the mothers were working in various semi-professional, skilled, and unskilled labor jobs while the other half were in the home. None of the working mothers were members of the executive classification. The fathers, however, had almost an equal distribution within the four occupational categories including the professional.

Data on the marital status of the families indicated that over 95% were married. Information regarding the family income and educational background of each parent was incomplete and was therefore excluded.

Teacher Sample

The four secondary teachers were selected at random from interested school districts. The teachers were already assigned to teaching students with reading problems and volunteered to participate in the study. The full support of each school's principal was a prerequisite for teacher participation.

It should be noted that the years of previous teaching experince ranged from zero to thirty-three and all of the teachers had a least thirty units over a B.A. Degree.

Procedure

Students

Students were placed in special learning center classes through district policy procedures. Once enrolled, each subject (student) was given the Slosson Intelligence Test. Table 1 indicates the I.Q. distribution.

Table 1

I.Q. Distribution Derived from the Slosson Intelligence Test Administered to the Forty-Nine Students in the Sample

I.Q.	Number of Students
Low below 91	28
Medium 91-110	18
High above 110	3

Along with the Slosson Intelligence Test, the subjects (students) were also pre- and post-tested utilizing the C.T.B.S. and the Slide-O-Gram Individualized Perceptual Program to determine reading vocabulary and comprehension along with letter-sound abilities before and after enrollment in the special learning center classes (see Appendix A). Table 2 shows the pre and post mean grade equivalent scores and the mean gain scores for each special learning center class.

Table 2

Pre- and Post-Test Mean Grade Equivalent Scores and Mean Gain Scores for each Class in the Sample

Class	Mean Grade Equivalent Scores		Mean Gain Score
	Pre	Post	
1	5.757	6.728	.9714
2	3.420	4.950	1.5300
3	4.666	5.580	.9133
4	4.470	5.190	.7200
			Grand Mean 1.0160

Instructional methods and procedures were discretionary for each of the four teachers. The research design required that the precription process be determined by the teacher according to student needs. However, the study did provide each classroom with several instructional material units from which the teacher and student could make selections. These materials were supplemental to those already housed in each classroom.

Teachers

During the school year the four secondary teachers in the study participated in four six-hour inservice sessions that were held by the project director. This inservice component was divided into five categories:

1. Use and application of diagnostic instruments used in the study.
2. Record keeping procedures.
3. Instruction in the administration and interpretation of the Slosson Intelligence Test.
4. Application of the supplementary instructional materials.
5. Presentation of teacher coping procedures for students with reading problems.

To determine the attitudes and opinions about child-centered and progressive vs. traditional policies and practices before and after the inservice component, the participating teachers were pre- and post-tested utilizing the Opinionnaire on Attitudes Toward Education (10) developed by Lindgren and Patton and the Education Scale (10) developed by Kerlinger and Kaya. A maximum score of 50 can be obtained for support of child-centered practices as measured by the Opinionnaire on Attitudes Toward Education. The more progressive vs. traditional educator could score as high as +60 on the Education Scale. These data are presented in Table 3.

Table 3

Change in Attitudes Toward Educational Practices: Child-Centered Policies and Practices in Education and Progressive Educational Practices vs. Traditional Educational Practices

Class	Child-Centered			Progressive vs. Traditional		
	Pre	Post	Difference	Pre	Post	Difference
1	47	45	-2	+19	+41	+22
2	45	44	-1	+26	+19	- 7
3	42	42	0	+ 3	+ 8	+ 5
4	45	44	-1	+ 9	+ 8	- 1

Results

Data gathered through pre- and post-testing revealed that a positive increase in grade equivalent scores did occur for all four special learning center classes in the study, with the grand mean increase being 1.016 for the total forty-nine students. A t test verified that this change or increase in grade equivalent scores was significant at the .001 level of con-

fidence ($t=7.815$, $df=48$, $p<.001$).

In addition to increases evidenced in grade equivalent scores for the total sample, significant increases in the grade equivalent scores for each of the four classes were also indicated in the application of the Wilcoxon Matched-pairs Sign-rank Test on the results obtained through the pre- and post-tests of the Comprehensive Tests of Basic Skills and the Slide-O-Gram Individualized Perceptual Program ($T=4.5$, $N=14$, $p<.01$; $T=0$, $N=10$, $p<.01$; $T=0$, $N=15$, $p<.01$; $T=7$ $N=10$ $p<.05$).

The pre- and post-test scores as measured by the Opinionnaire on Attitudes Toward Education and the Education Scale were compared. An inspection of Table 3 shows clearly that each of the four teachers demonstrated a favorable attitude toward child-centered educational practices and policies as evidenced by the high scores. Although the post-test scores were slightly lower (1-2 points), the changes continued to show a strong bias toward child-centered practices.

In addition, Table 3 shows that each of the four teachers exhibited progressive attitudes toward education as evidenced by the positive total scores on the Education Scale. Although a diversity of 33 points existed between individual teacher scores, each score fell into the range of positive support for progressive educational policies and practices.

Conclusions and Decisions

This research was conducted as an exploratory study of the effects teacher inservice had on secondary student reading scores. Since the mean gain score for each of the four special learning center classes was significant (.05), indications are that these students were capable of mastering reading skills. It is also noted that the entry level grade equivalent scores showed that cumulative student progress was not as great in

previous years of schooling.

It is therefore suggested that consideration be given to a study designed to test the hypothesis that specific inservice components have a positive effect on secondary student reading scores. As the RISE Commission stated:

> School systems, staff and professional organizations should provide staff development activities in the skills of coordinating and managing resources, and in good teaching techniques. These skills are needed to conduct an instructional program that is personalized for each learner and utilizes the broader community to provide varied facilities and enrich learning experiences. (14)

Perhaps, then it is appropriate to consider findings from the present investigation which support the assumption that many students reading below grade level can increase their reading ability with assistance from professionally trained personnel.

There are several explanations that may account for the findings of this study. Perhaps the Hawthorne Effect assisted the teachers in their motivation to succeed. Gaining knowledge usually obtained in university classes probably encouraged teachers to implement "hands on" information while learning the process.

Within these considerations, it was found that secondary students enrolled in special learning center classes can demonstrate overall significant gains when materials and methods are professionally used in a progressive child-centered atmosphere.

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Appendix A

Application of the Wilcoxon Matched-pairs Signed-ranks Test Utilizing the Pre- and Post-Test Grade Equivalent Scores Derived from the Combined Vocabulary and Comprehension Scores of the Comprehensive Tests of Basic Skills

Table 4

Application of the Wilcoxon Matched-pairs Signed-ranks Test Utilizing the Pre- and Post-Test Grade Equivalent Scores Derived from the Combined Vocabulary and Comprehension Scores of the Comprehensive Tests of Basic Skills

Student	Grade Equivalent Scores		D_i $(X_{i1}-X_{i2})$	Rank of D_i	Positive Ranks	Negative Ranks
	Pre X_{i1}	Post X_{i2}				
1	9.6	9.1	-.5	(-) 4.5		-4.5
2	5.3	5.7	.4	(+) 3.0	+ 3.0	
3	4.6	5.1	.5	(+) 4.5	+ 4.5	
4	3.4	3.4	0	0		
5	8.7	10.9	2.2	(+)11.0	+11.0	
6	2.7	4.5	1.8	(+)10.0	+10.0	
7	6.9	6.9	0	0		
8	4.2	4.3	.1	(+) 1.0	+ 1.0	
9	2.7	3.5	.8	(+) 7.0	+ 7.0	
10	3.7	7.8	4.1	(+)12.0	+12.0	
11	8.7	10.4	1.7	(+) 8.5	+ 8.5	
12	9.8	11.5	1.7	(+) 8.5	+ 8.5	
13	7.0	7.6	.6	(+) 6.0	+ 6.0	
14	3.3	3.5	.2	(+) 2.0	+ 2.0	
Sum	80.60	94.20	13.60	(+)69.0	+73.50	+4.5
Mean	5.757	6.728	.9714	-	-	-

T=4.5

Table 5

Application of the Wilcoxon Matched-pairs Signed-ranks Test Utilizing the Pre- and Post-Test Grade Equivalent Scores Derived from the Combined Vocabulary and Comprehension Scores of the Comprehensive Tests of Basic Skills

Student	Grade Equivalent Scores		D_i $(X_{i2}-X_{i1})$	Rank of D_i	Positive Ranks	Negative Ranks
	Pre X_{i1}	Post X_{i2}				
1	1.2	2.5	1.3	(+) 4.0	+ 4.0	
2	2.6	4.3	1.7	(+) 6.0	+ 6.0	
3	5.0	7.0	2.0	(+) 8.0	+ 8.0	
4	1.6	4.9	3.3	(+)10.0	+10.0	
5	4.8	7.0	2.2	(+) 9.0	+ 9.0	
6	3.4	3.9	0.5	(+) 2.0	+ 2.0	
7	6.1	7.8	1.7	(+) 6.0	+ 6.0	
8	2.8	3.4	0.6	(+) 3.0	+ 3.0	
9	3.4	5.1	1.7	(+) 6.0	+ 6.0	
10	3.3	3.6	0.3	(+) 1.0	+ 1.0	
Sum	34.2	49.5	15.3	(+)55.0	+55.0	0
Mean	3.420	4.950	1.5300	-	-	-

T=0

Table 6

Application of the Wilcoxon Matched-pairs Signed-ranks Test Utilizing the Pre- and Post-Test Grade Equivalent Scores Derived from the Combined Vocabulary and Comprehension Scores of the Comprehensive Tests of Basic Skills

Student	Grade Equivalent Scores		D	Rank of	Positive	Negative
	Pre X_{i1}	Post X_{i2}	$(X_{i2}-X_{i1})$	D_i	Ranks	Ranks
1	7.8	10.2	2.4	(+) 14.0	+ 14.0	
2	5.7	6.9	1.2	(+) 8.5	+ 8.5	
3	3.1	3.9	0.8	(+) 4.0	+ 4.0	
4	3.2	3.9	0.7	(+) 2.5	+ 2.5	
5	5.0	5.7	0.7	(+) 2.5	+ 2.5	
6	3.9	5.0	1.1	(+) 7.0	+ 7.0	
7	3.6	4.6	1.0	(+) 6.0	+ 6.0	
8	3.7	3.9	0.2	(+) 1.0	+ 1.0	
9	2.4	4.2	1.8	(+) 10.0	+ 10.0	
10	4.9	7.0	2.1	(+) 13.0	+ 13.0	
11	4.6	4.7	0.1	(+) 5.0	+ 5.0	
12	3.7	3.7	0	0	0	
13	5.0	5.2	2.0	(+) 2.0	+ 11.5	
14	5.7	5.9	2.0	(+) 2.0	+ 11.5	
15	7.7	8.9	1.2	(+) 8.5	+ 8.5	
Sum	70.0	83.7	13.7	(+)105.0	+105.0	0
Mean	4.666	5.580	.9133	-	-	-

T=0

Table 7

Application of the Wilcoxon Matched-pairs Signed-ranks Test Utilizing the Pre- and Post-Test Grade Equivalent Scores Derived from the Combined Vocabulary and Comprehension Scores of the Comprehensive Tests of Basic Skills

Student	Grade Equivalent Scores		D	Rank of D	Positive Ranks	Negative Ranks
	Pre X	Post X				
1	4.3	4.8	0.5	(+) 5.5	+ 5.5	
2	4.1	4.6	0.5	(+) 5.5	+ 5.5	
3	3.9	4.8	0.9	(+) 7.0	+ 7.0	
4	5.3	6.7	1.4	(+) 9.0	+ 9.0	
5	5.4	8.3	2.9	(+)10.0	+10.0	
6	3.5	4.8	1.3	(+) 8.0	+ 8.0	
7	3.5	3.2	-0.3	(-) 4.0		-4.0
8	3.9	4.0	0.1	(+) 1.5	+ 1.5	
9	5.6	5.4	-0.2	(-) 3.0		-3.0
10	5.2	5.3	0.1	(+) 1.5	+ 1.5	
Sum	44.7	51.9	7.2	(+)55.0	+48.0	-7.0
Mean	4.470	5.190	.7200	- -	- -	- -

T=7